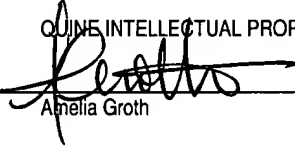


I hereby certify that this correspondence is being
deposited with the United States Postal Service
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QUINE INTELLECTUAL PROPERTY LAW GROUP, P.C.

By


Amelia Groth

Attorney Docket No. 407T-895820US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Ben Shen, et al.

Application No.: 09/477,962

Filed: January 5, 2000

For: BLEOMYCIN GENE CLUSTER
COMPONENTS AND THEIR USES

Examiner: Kathleen M. Kerr

Art Unit: 1652

LETTER TO OFFICIAL DRAFTSPERSON

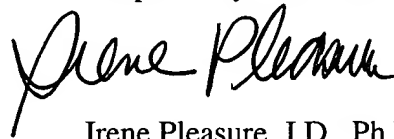
#25
B.G.J.
7/10/03

Mail Stop RCE
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P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

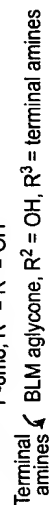
Applicant hereby submits 19 sheets of formal drawings to be made of record in
the above-identified case.

Respectfully submitted,



Irene Pleasure, J.D., Ph.D.
Reg. No. 45,506

QUINE INTELLECTUAL PROPERTY LAW GROUP, P.C.
P.O. BOX 458
Alameda, CA 94501
(510) 337-7871
Fax (510) 337-7877





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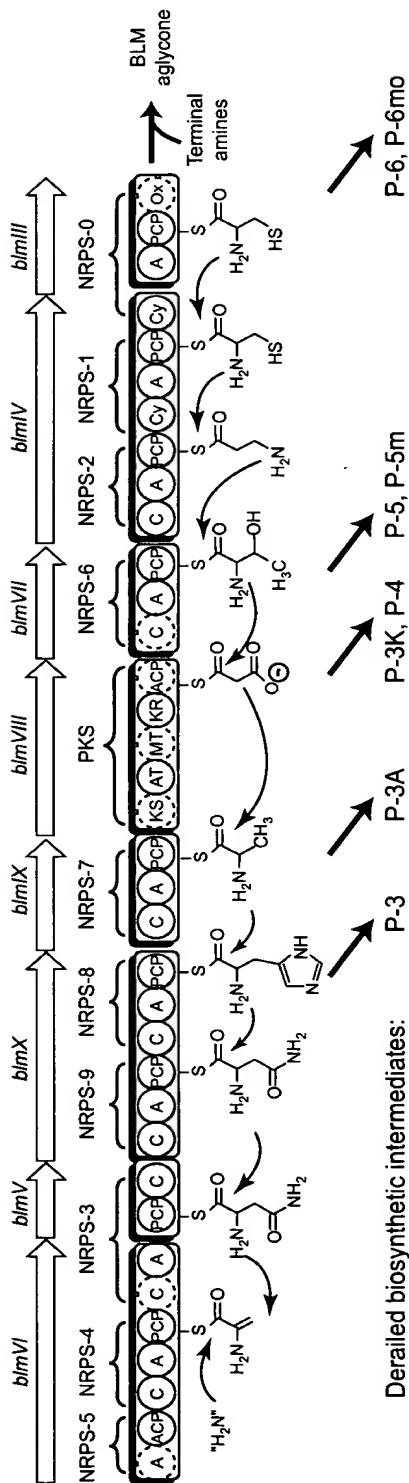


Fig. 1B



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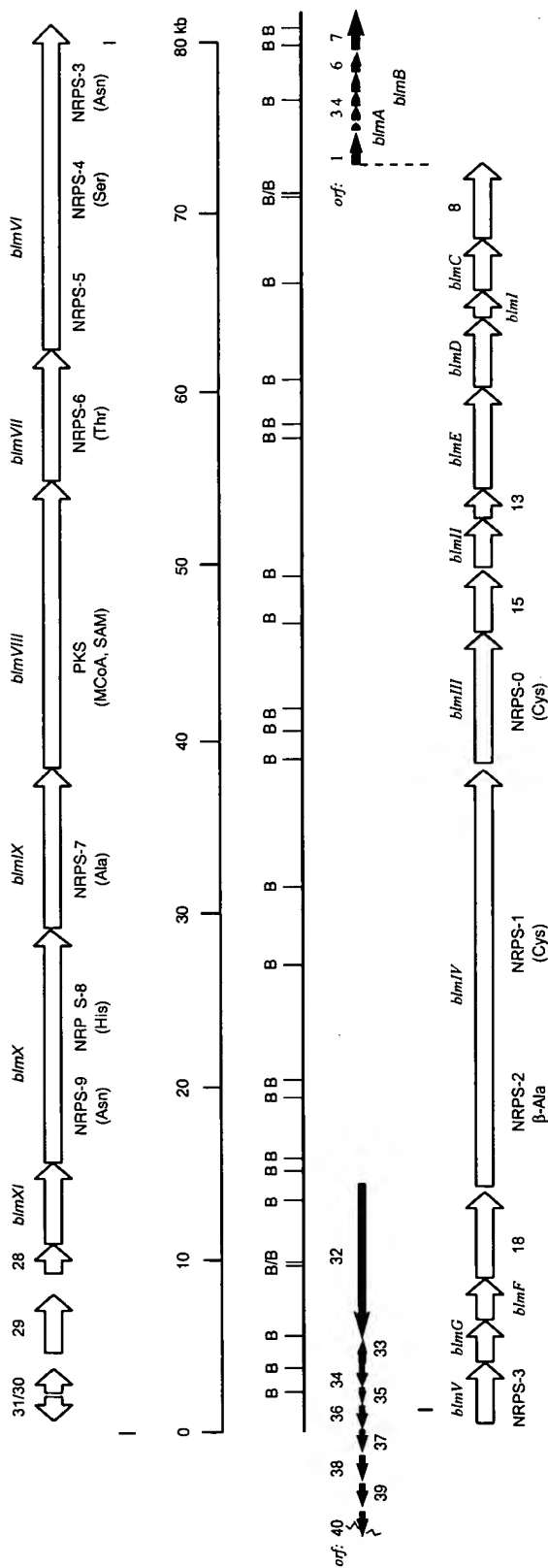


Fig. 2



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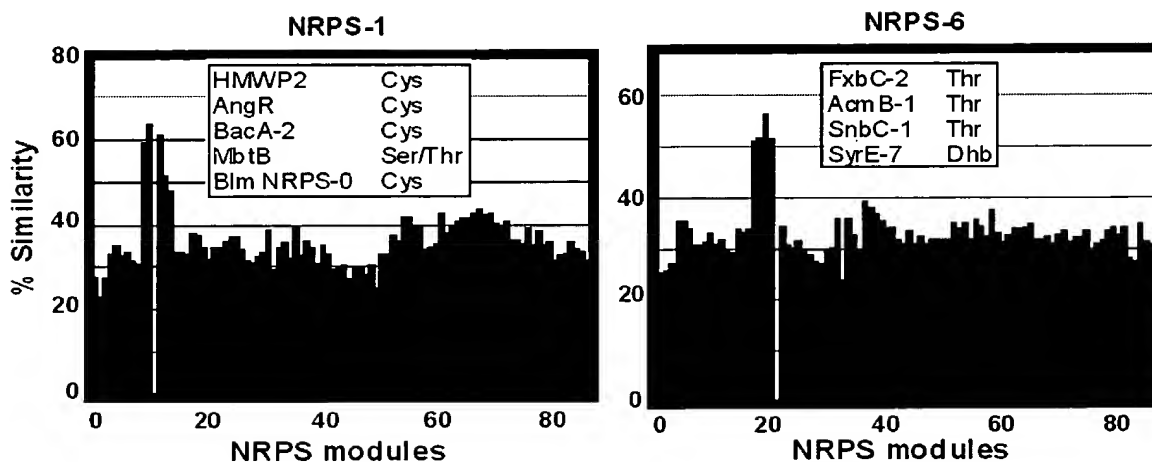


Fig. 3A

| | | Residues (PheA numbering) (16) | | | | | | | |
|-------------------|------------|--------------------------------|-----|-----|-----|-----|-----|-----|-----|
| NRPS module | Substrate | 236 | 239 | 278 | 299 | 301 | 322 | 330 | 331 |
| HMWP2 | Cys | L | Y | N | M | S | M | I | W |
| AngR | Cys | L | Y | N | M | S | M | I | W |
| BacA-2 | Cys | L | Y | N | L | S | L | I | W |
| MbtB | Ser/Thr | M | L | N | A | G | L | V | H |
| Blm NRPS-0 | Cys | L | Y | H | L | G | L | P | W |
| Blm NRPS-1 | Cys | L | Y | N | L | S | L | I | W |
| SyrE-7 | Dhb | F | W | N | V | G | M | V | H |
| AcmB-1 | Thr | F | W | N | V | G | M | V | H |
| SnbC-1 | Thr | F | W | N | I | G | M | V | H |
| FxbC-2 | Thr | F | W | N | V | G | M | V | H |
| Blm NRPS-6 | Thr | F | W | S | V | G | M | I | H |

Fig. 3B



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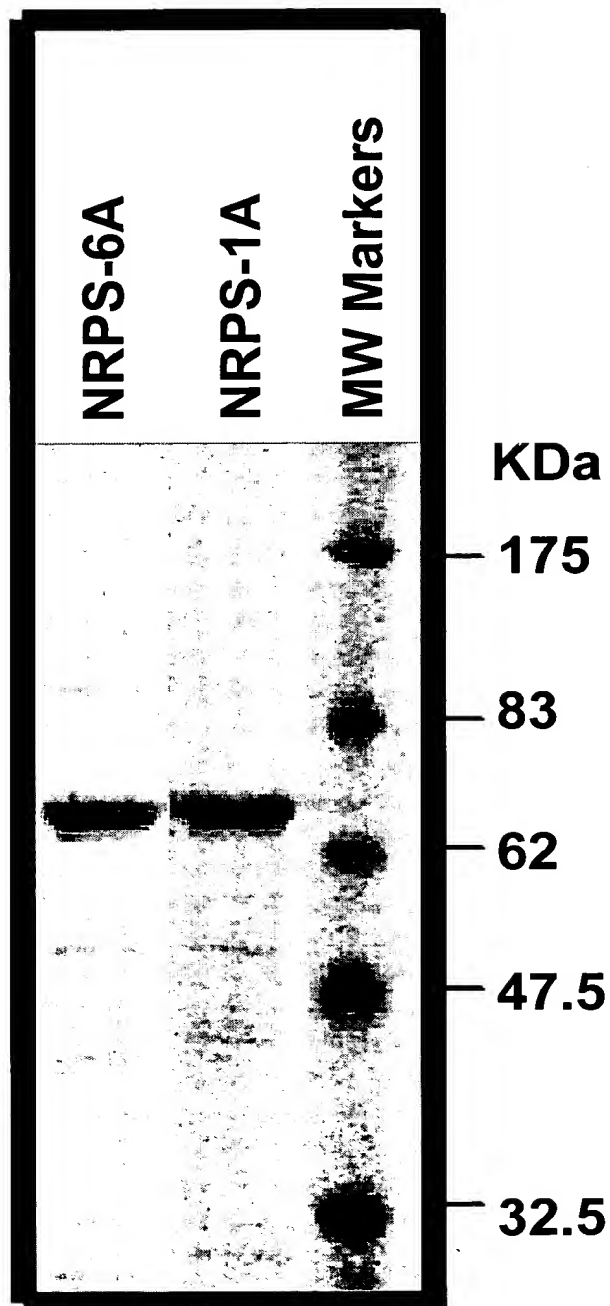


Fig. 3C



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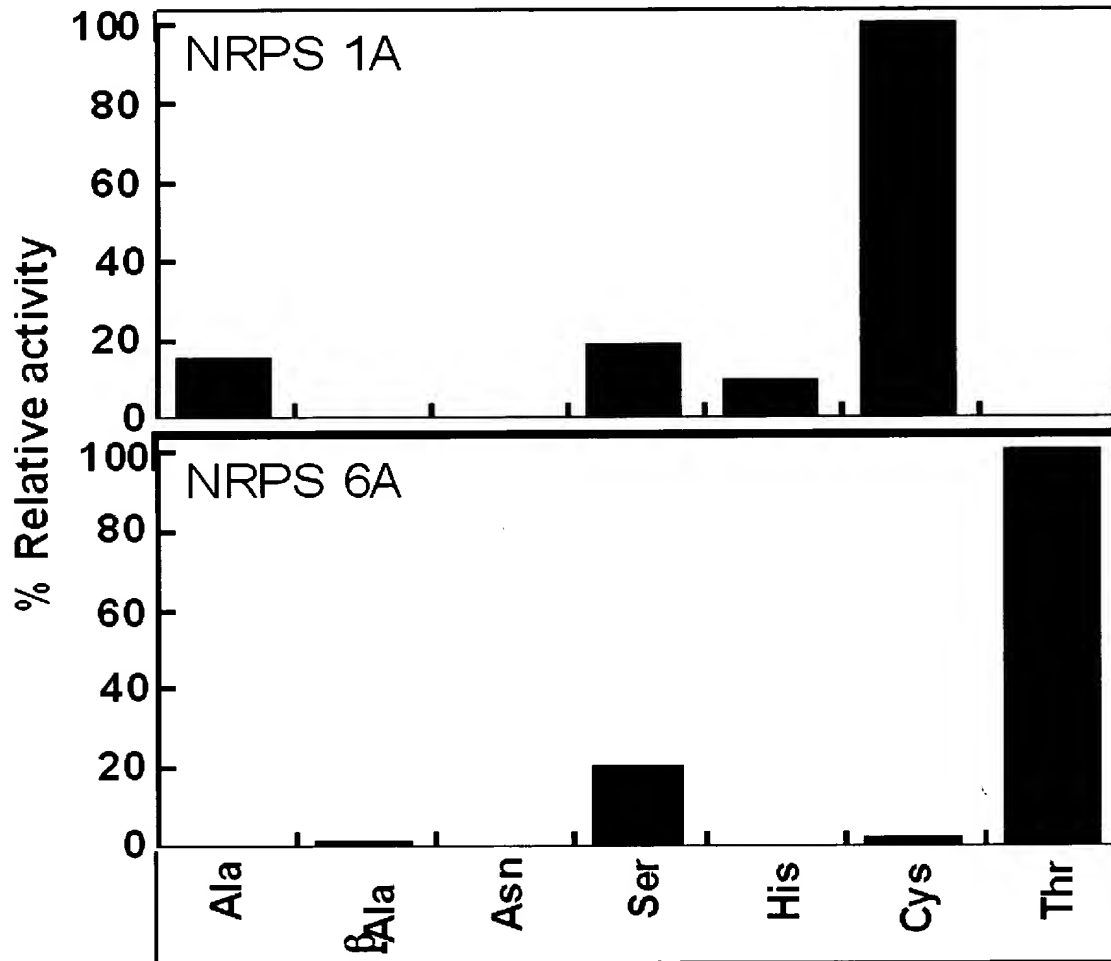
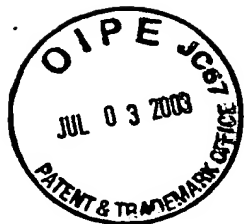


Fig. 3D



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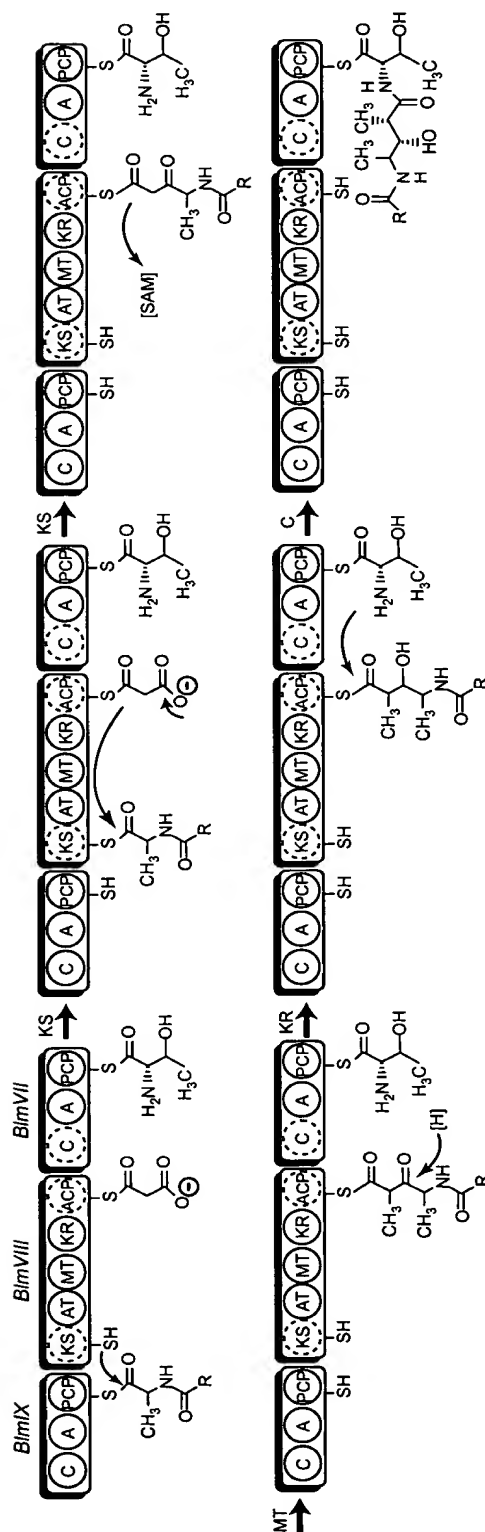


Fig. 4



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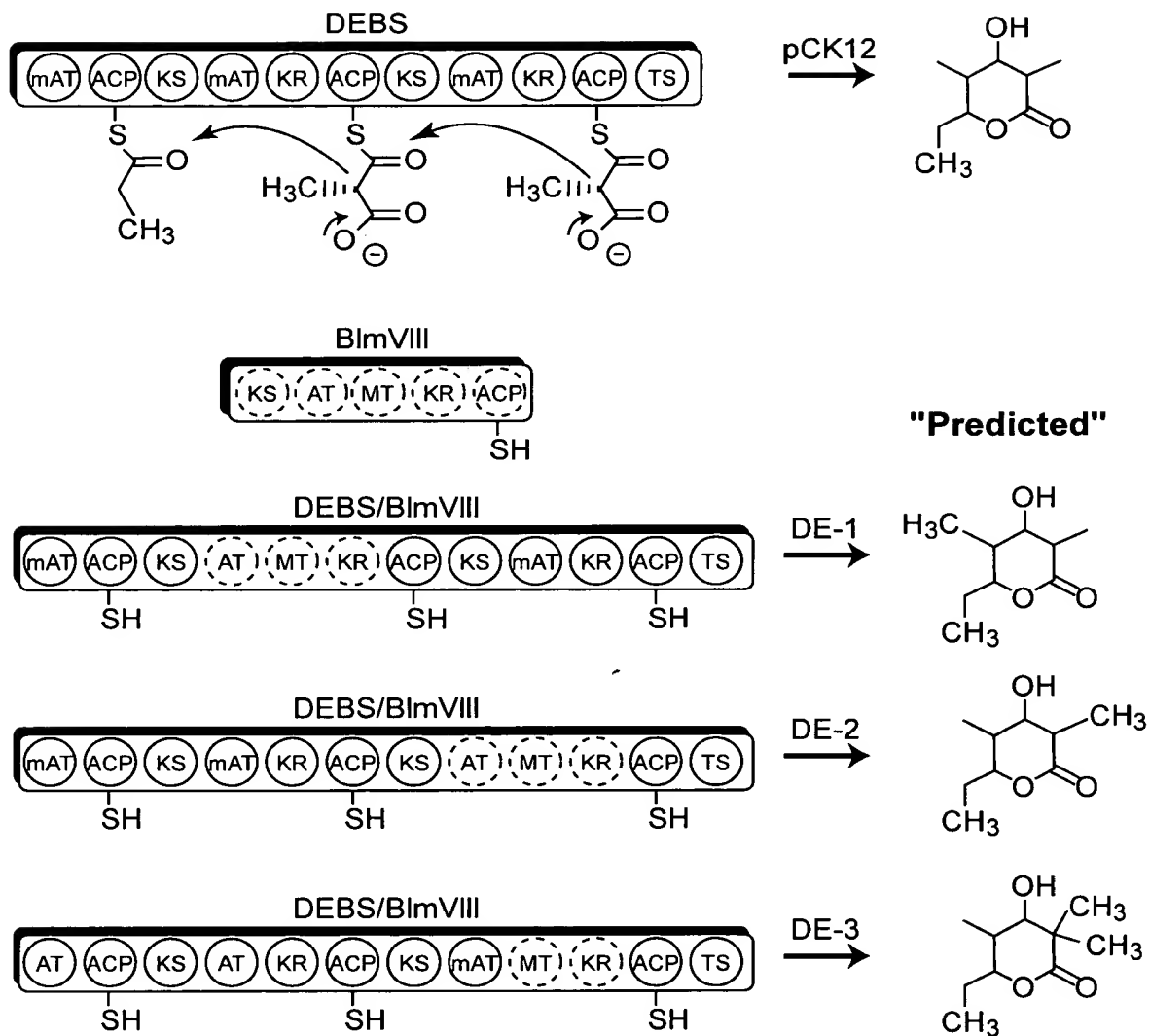


Fig. 5



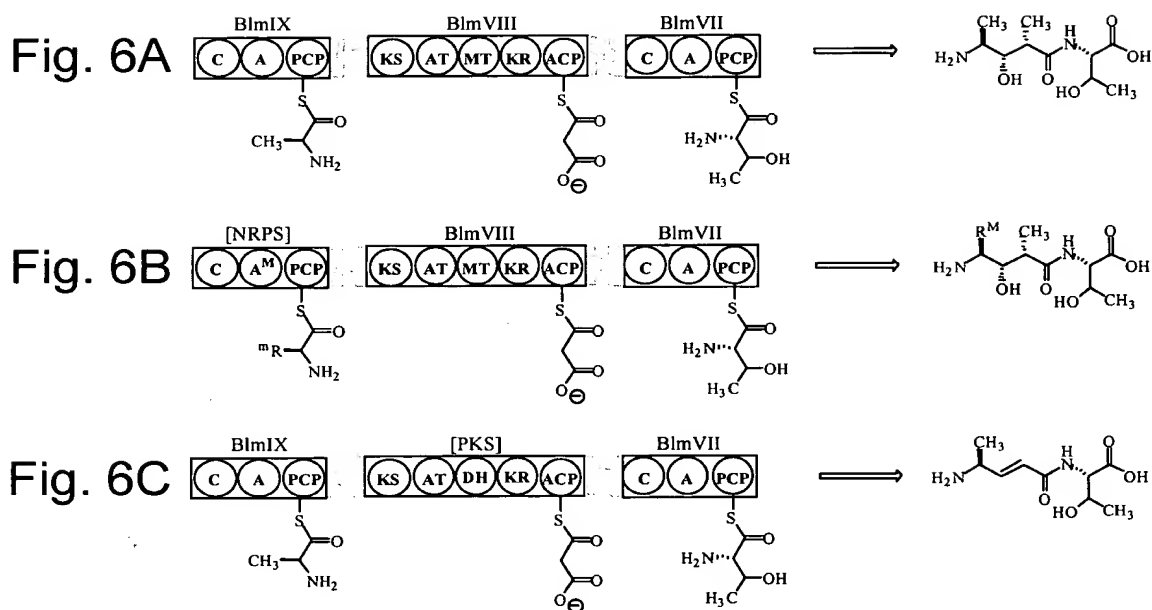
BLEOMYCIN GENE CLUSTER COMPONENTS
AND THEIR USES

Ben Shen, et al.

Serial No.: 09/477,962

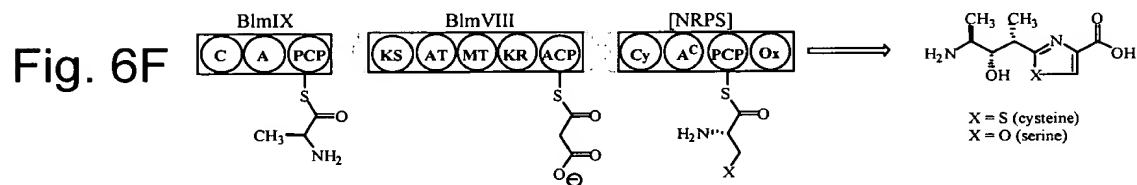
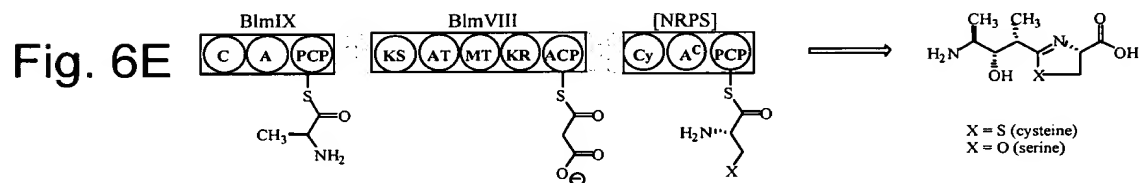
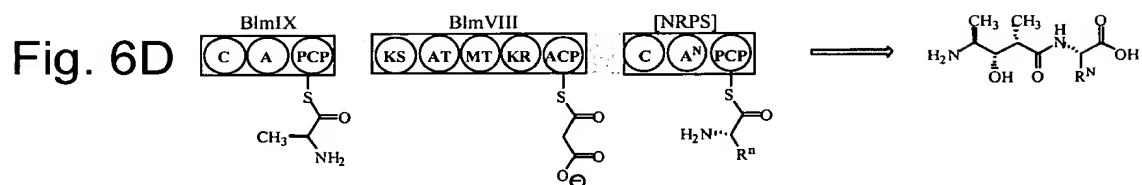
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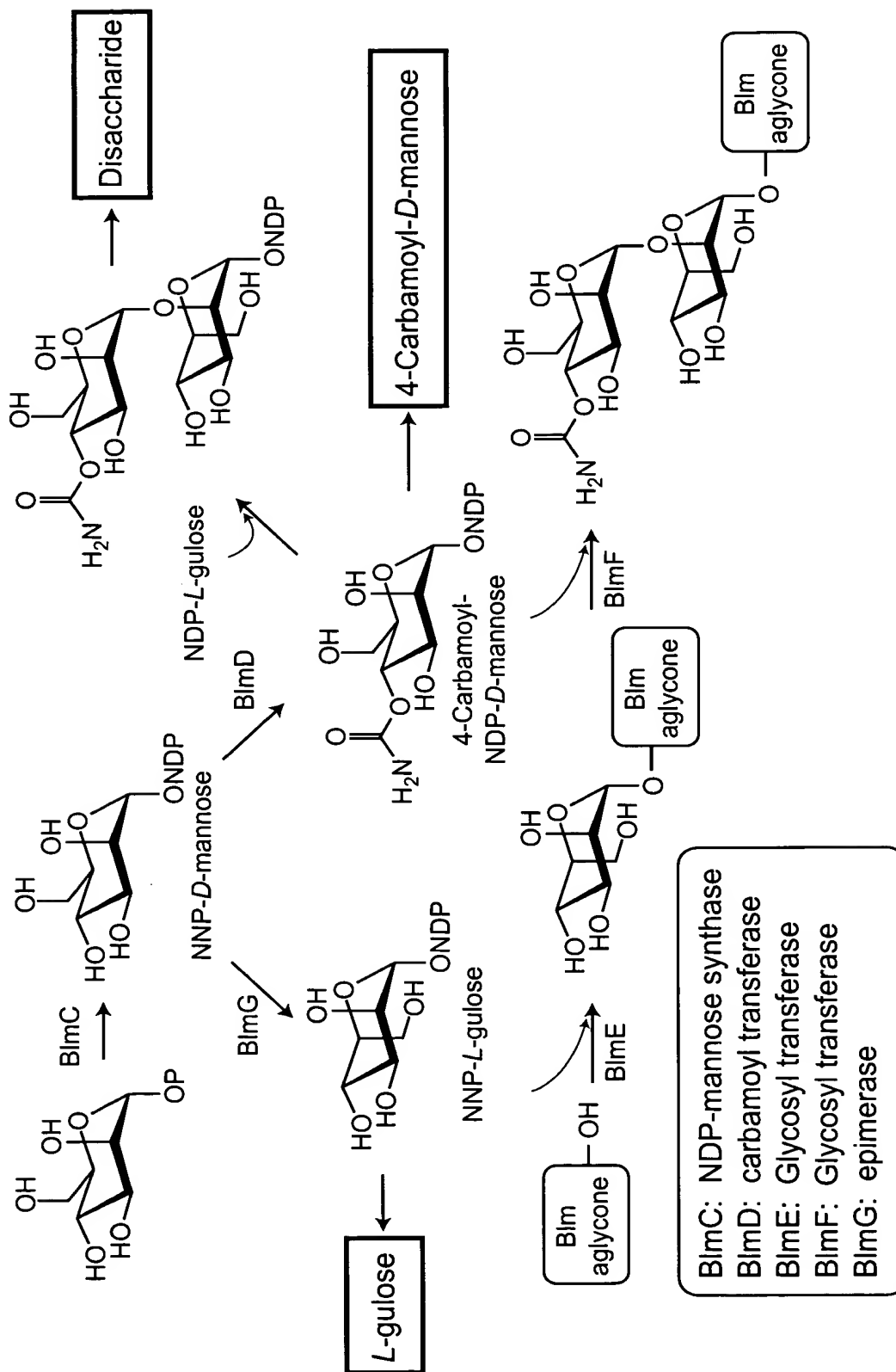


Fig. 7

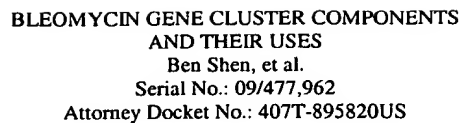
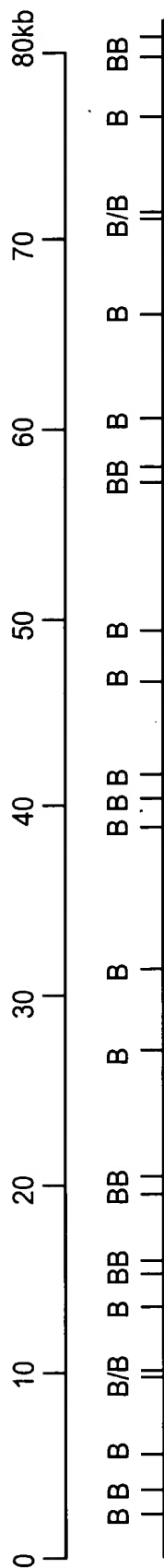


Fig. 8A





BLEOMYCIN GENE CLUSTER COMPONENTS
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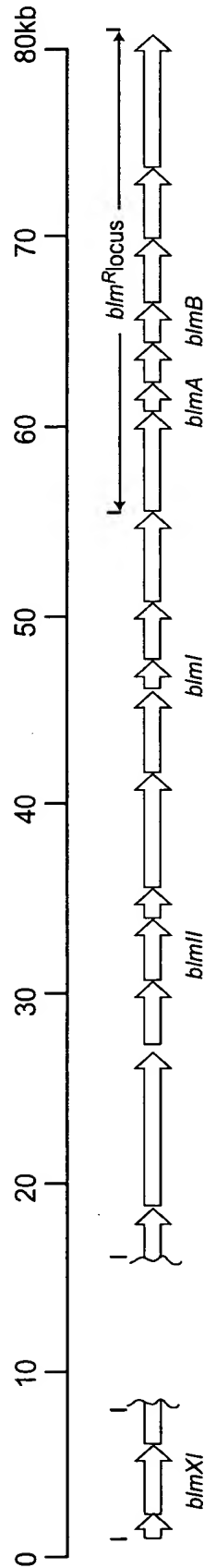


Fig. 8B



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-18 RBS
CC GGACGG CGGCCCCTC
ATGAGCGCCCCGGGGGAGCGGACCCGGCGCGCGCTCGAACGCGACATCGCCGCGATCTGGGCCGAGACCCCTCGGCAGGGACAGCGTC 93
M S A P R G E R T R R R A L E R D I A A I W A E T L G R D S V
GGCCGCGACGAGGACTTGGCCGCGCTGGGCGGCAACTCCATCCACGCCATCAAGATCACCAACCGGGTGGAGGAACCTCGTCGACGCCGAGCTG 186
G P H E D F A A L G G N S I H A I K I T N R V E E L V D A E L
TCCATCCGCGCTCTGCTCGAGACGCGCACCGTGGCGGGCATGACGGACCAACGTCACGCCACGCTCACGGGGGAGCGGGACCGGTGA 273
S I R V L L E T R T V A G M T D H V H A T L T G E R D R *

Fig. 8C

Grs-2 3045-ISIGTEYVAPRTMLEGKLEEIWKDVIGLQRVGITDDFFTIGGHSL-3089
Srfa-3 960-DQLAEEWIGERNEMEETTAQIWSEVIGRKQIGITDDFFPALGGHSL-1004
Vir-S 557-GRSVEGRGVPTTPOQEILASLFAEVLGLSKVGTEDFFDLGGHSL-601
Saf-B 1661-LDPGQDYLAETNELEARTAAATWEGLIIRRRVGVDSFFDLGGNSL-1705
BlmI 1-MSAPRGERTRRALERDIAATWAETLGRDSVPEDFAALGCNSI-45
consensus 1-i g eyvapR le ia iw evLgr rvGiHddFf lGGhSl-45

Grs-2 3090-KAMAVISQVHKECQTEVPLRVLFETETIQGLAKYIEETDTEQYMA-3134
Srfa-3 1005-KAMTAVPH.QQELGIDLPVKLLFFAETIACISAYLKNGGSDGLQD-1048
Vir-S 602-LATRLTSRIRTVLGAEIAVRDLFEAETVEALAETLEEAREVRPAL-646
Saf-B 1706-LATRLATRLAATLQVQAGVTVFEHRIVAAQAAHFTQATKTHQAH-1750
BlmI 46-HAIKITNRVEELVDAELSIRVLLFTRIVAGMTDHSVHATLTGERDR-90
consensus 46-kAmrv srv 1 ev vrvlfe pTvagla i g t -90

Fig. 9



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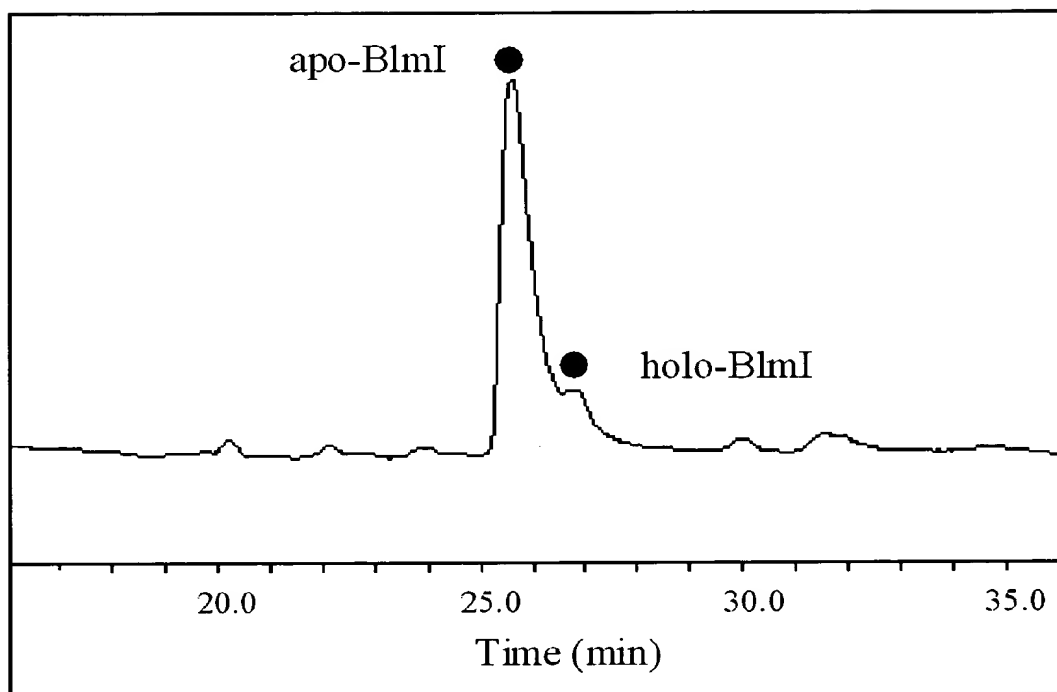


Fig. 10A



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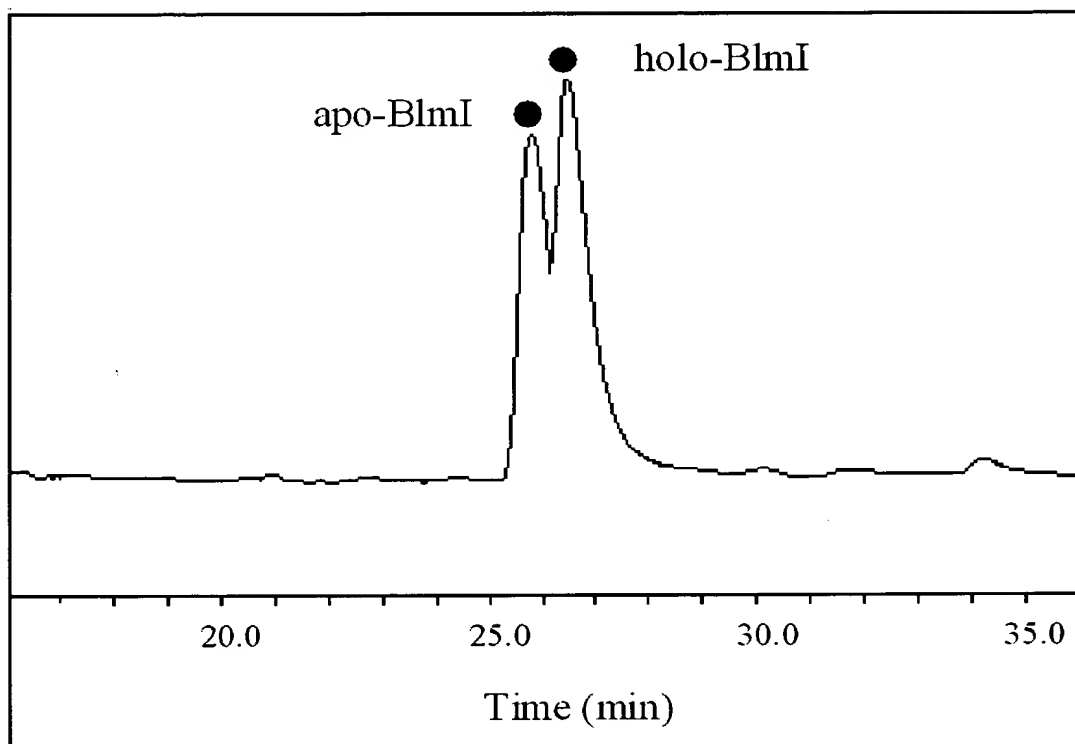


Fig. 10B



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Nonreiterative Type I Modular Protein Template

Fig. 11A
PKS

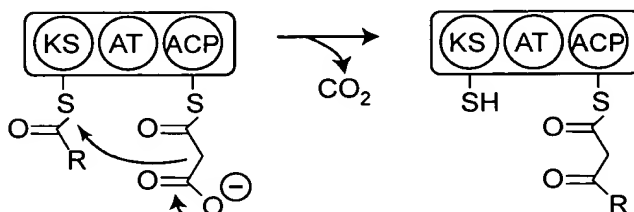
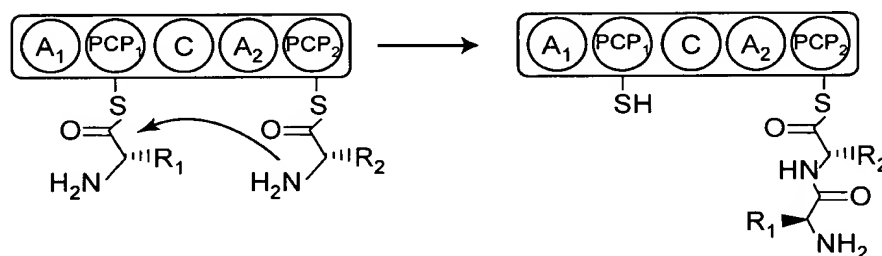


Fig. 11B
NPRS



Iterative Type II Protein Complex

Fig. 11C
PKS

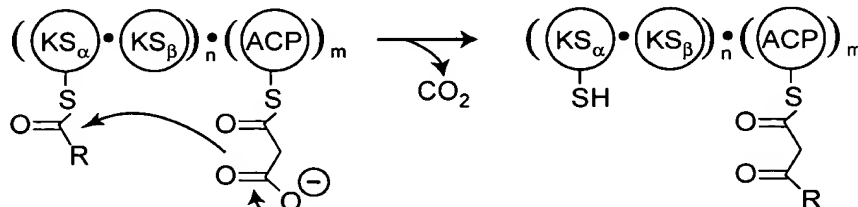
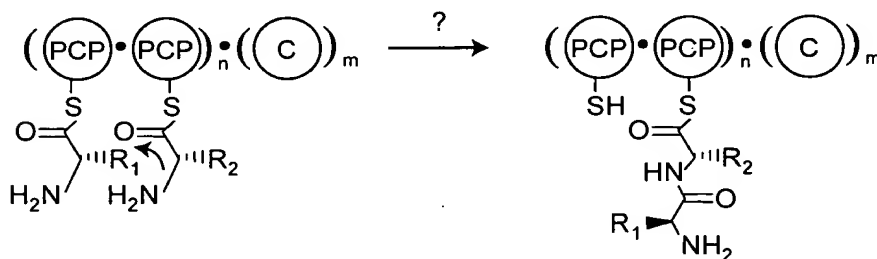


Fig. 11D
NPRS





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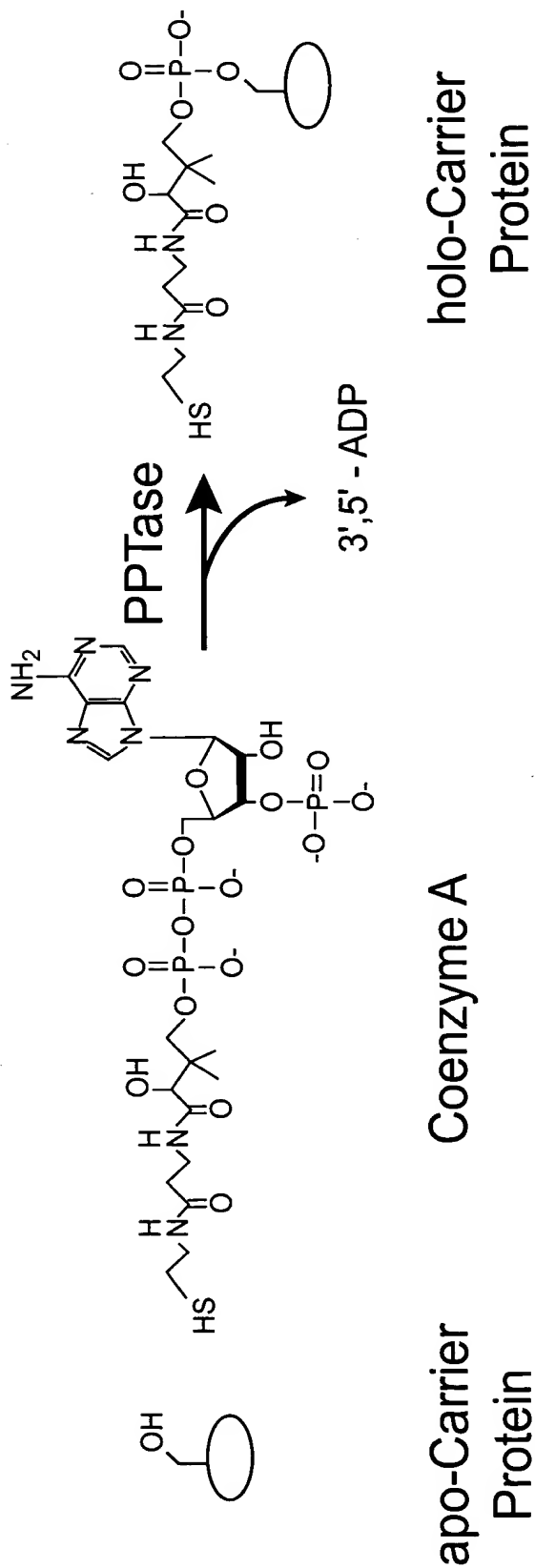


Fig. 12



BLEOMYCIN GENE CLUSTER COMPONENT
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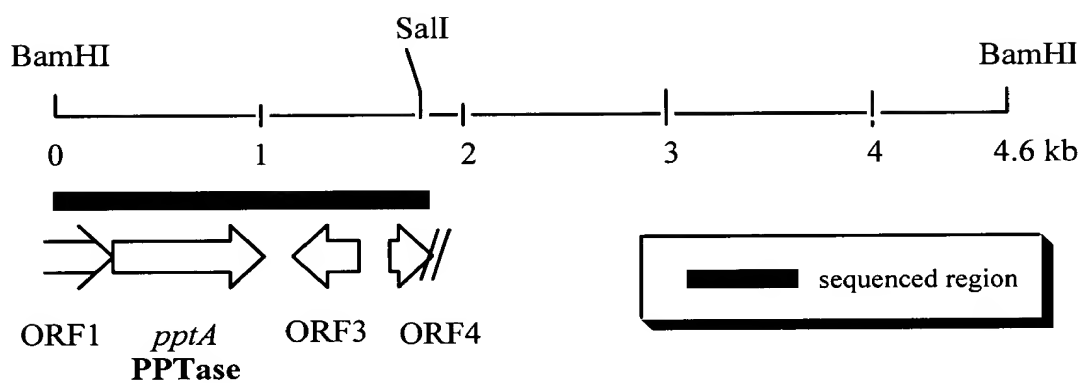


Fig. 13